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C01
Identification of bio-markers in sarcoidosis bal using multidimensional differential display proteome analysis coupled with nano-hplc ms/ms

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Abstract

It is well recognized that activated T-cells together with histiocyte/macrohages accumulate in the interstitium and alveoli of the sarcoidosis lung forming granulomas. The goal of this study is to perform a global analysis of the sarcoidosis-macrophage proteome using multidimensional differential display to identify molecular species unique to this ILD. To this effect CD14+ cells were isolated from the BAL of sarcoidosis patients (n=10), patients with other ILDs (n=10) or from patients with no ILD (n=4). Proteomes of each BAL were prepared using large format two-dimensional gel electrophoreses. TiFF files were warped in reference to sarcoidosis and all spots integrated into a large matrix.

A total of 23960 spots were analyzed, 1198 spots comprised the sarcoidosis proteome, of these 383 were up-regulated over two-fold and 294 over 10 fold when compared with proteomes of the patients without ILD (Fig. 1). The sarcoidosis proteome was next compared with all other ILDs in a step-wise manner or globally, showing that 154 sarcoidosis spots remained upregulated over 3 fold and 94 over 10 fold. Protein identification by nano-HPLC-MS/MS on an LTQ instrument revealed species involved in cellular metabolism, calcium mobilization, actin binding, cell signaling, apoptosis, cell division and inflammation of which 10 are being studied as candidate biomakerkers.

C02
The clinical significance of IL2, IL12, TGFbeta serum and balf levels in sarcoidosis-a preliminary study

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Abstract

There is evidence from clinical immunology that the serum and BALF cytokine analysis may be useful for clinicians to assess the extent and activity of sarcoid inflammation.

Aim: To test the relationship between serum and BALF IL2, IL12, TGFbeta levels and the clinical outcome of sarcoidosis.

Methods: In 38 patients with biopsy proven sarcoidosis we measured the serum and BALF IL2, IL12, TGFbeta levels by the commercial sandwich ELISA kit from BioSource and the non specific serum inflammation markers (proteinogram, CRP, D-dimer, Fibrinogen,)

We compared the serum and BALF IL2, IL12, TGFbeta levels, serum non specific inflammation markers in sarcoid patients according to different clinical signatures of the disease.

Results: The EN (n=5) was associated with high serum alfa2globulin (p=0,03) and fibrinogen level (p=0,0002) and low 02saturation during 6mWT (p=0,04).

C03
Cytokine release from alveolar macrophages in idiopathic interstitial pneumonia

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Abstract

Object of study: Idiopathic interstitial pneumonia (IIP) is a group of interstitial pneumonias with unknown causes, classified as different subgroups according to the histological characteristics. Alveolar macrophages (AM) are able to release various cytokines and play an important role in the inflammatory and fibrotic process of IIP. However, the production of cytokines by AMs in the subgroups of IIP is still unclear.
Methods: We measured the release of TNF-alpha, TGF-beta, IL-1beta, IL-6, IL-10, IL-12 and IL-18 from bronchoalveolar lavage (BAL) macrophages in 9 patients with cryptogenic organising pneumonia (COP), 13 with non-specific interstitial pneumonia (NSIP), 5 with respiratory bronchiolitis interstitial lung disease (RBILD), 4 with desquamative interstitial pneumonia (DIP), 19 with idiopathic pulmonary fibrosis (IPF) and 10 controls. AMs were cultured for 24h with RPMI medium alone or with lipopolysacchride (LPS) (100ng/ml). Cytokines in the supernatants were measured by ELISA.
Results: The spontaneous levels of TNF-alpha, TGF-beta, IL-1beta, IL-6, IL-10, IL-12 and IL-18 released from BAL macrophages were significantly higher in COP than in IPF and controls ($p<0.05$ or <0.01 respectively), and except for IL-18 also significantly higher in NSIP than in IPF and controls (all $p<0.05$). The production of these cytokines with or without LPS stimulation was highest in COP, followed by NSIP, and lowest in DIP/RBILD and IPF.

C04
Characteristics of myofibroblasts (MyFb) recovered by bronchoalveolar lavage in interstitial lung diseases (ILD)

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Abstract

We have developed a novel technique which allows to isolate myofibroblasts (MyFb)cells from the fluid recovered during bronchoalveolar lavage in patients undergoing this procedure for diagnostic porpoises. This method is crucial since it gives us the possibility to achieve those cells also from entities (like sarcoidosis, hypersensitivity pneumonitis) where there is no clinical indication for open lung biopsy or thoracoscopy. Most of the studies in literature use animal model, cell lines or cells recovered from lung surgery. The phenotype of MyFb in sarcoidosis (SA) and idiopathic pulmonary fibrosis (IPF) is unclear. We characterized the cytoskeletal proteins and the contraction properties in alveolar-associated fibroblasts recovered by bronchoalveolar lavage (BAL) in the two diseases. MyFb were studied from BAL cells in eight IPF and seven SA patients. Cytoskeletal proteins were identified by ELISA and immunofluorescent methods. Biochemical measurements were done by dry chemistry. Contraction was performed by a gel contraction assay. MyFb alpha-SM actin measured by ELISA was higher in IPF than in SA. Vimentin, desmin, myosin, and fibroblast markers were expressed equally. Only in IPF did the MyFb reveal the myofibroblast phenotype showing alpha-SM actin immunofluorescence labeling and, by electron microscopy, filaments with associated dense bodies with rough endoplasmic reticulum. Gel contraction showed that cells in IPF contracted significantly more than in SA. This may explain the difference in the behavior patterns and outcomes of the two diseases. Recovery of MyFb from BAL fluid open a window to the mesenchymal cells research in ILD.

C05
Pulmonary alveolar proteinosis. A report of turkish cases

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Abstract

We review 15 patients (5 male and 10 female, mean age 37 years) with the diagnosis of pulmonary alveolar proteinosis diagnosed and followed in three University Hospitals in Turkey. The major clinical features were dyspnea, cough, and chest pain, with durations of symptoms from three months to five years. On chest radiography, there were bilateral symmetrical alveolar opacities located centrally in the mid and lower lung zones. High resolution CT (HRCT) scanning revealed widespread ground-glass opacification in nine cases and "crazy-paving" in the remainder. The diagnoses were established in all patients by transbronchial biopsy or from fluid obtained at bronchoalveolar lavage

(BAL). A total of 29 episodes of whole lung lavage were performed across 12 cases, using between 15 and 30 litres per episode. Eleven cases had sequential right and left lung lavages, twice in one case. The twelth case required five separate episodes of lavage on the left over a period of six years for progressive disease. In this case, the fourth lavage resulted in severe hypoxemia and prolonged intensive care unit (ICU) stay, probably due to an excess amount of residue left in the lung: the fifth lavage was fatal after prolonged ICU stay due to ventilator-associated pneumonia (VAP) and sepsis. Two of the patients experienced spontaneous remission.

C06
Acute fibrinous and organizing pneumonia (AFOP) in the ICU-case report

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Abstract

Acute fibrinous and organizing pneumonia (AFOP) has been recognized as a distinctive histologic pattern, which does not meet the classic histologic criteria for diffuse alveolar damage (DAD), BOOP, or eosinophilic pneumonia (EP) and may represent an underreported variant. AFOP differs from the classic patterns of DAD and organizing pneumonia in that organizing intra-alveolar fibrin constitutes the dominant histologic finding, and differs from the pattern of EP by the lack of prominent eosinophils.

The authors report the case of a 35-years old man admitted to the hospital complaining of sore throat, fever, cough and muco-purulent sputum. In the same day he was admitted to the ICU with the hypothesis of community-acquired pneumonia. The patient suffered head trauma a few years ago and there was no history of drug addiction, was a non-smoker and without other epidemiological risk factors. Despite the use of appropriate antibiotherapy and steroids, his condition didn't improve. He was always kept under mechanical ventilation and developed multiorgan failure. Blood, tracheo-bronchial aspirate, bronchoalveolar lavage (BAL) and urine microbiological tests were negative. BAL showed extreme neutrophilic alveolitis (N: 75%; L: 12%; E: 2%; M: 9%; CD4/CD8: 1,3) with normal cell count (133/mm3). Autoimmunity tests were negative. Lung biopsy was compatible with AFOP.

The evolution of this patient was fatal after 20 days in the ICU. According to some literature there are no identifiable clinical or histologic parameters predictive of patient outcome with the exception of those who need mechanical ventilation that have a worse prognosis. An optimal therapy is not clearly identified.

C07
A 45-year-old man with a persistent cough

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Abstract

A 45-year-old man was referred to a pulmonologist because of a five-month history of cough productive of sputum, exertional dyspnea, wheezing and fatigue. He had no fever, chills or nocturnal sweats.

The patient was a businessman. He did not smoke or abuse alcohol and took no customary medication. He bred chickens, pigeons, turtle-doves and canaries.

The Chest radiograph revealed a bilateral reticulonodular pattern and high resolution CT scan findings included ground-glass attenuation. Lung function tests showed restrictive ventilatory defect and reduced transfer factor. Bronchoalveolar lavage had significant increase in the total cell count (740.0/mm3) and contained high absolute and relative numbers of lymphocytes (80%). Analysis of T-cell surface phenotypes revealed strong predominance of CD 8 T cells associated with a reduced CD4/CD8 ratio (0.4). Laboratory findings included precipitating antibodies in pigeon's feathers, droppings and serum (titre 175).The patient was admitted to the hospital for a CT-guided needle biopsy. Histopathological evaluation of lung tissue revealed an interstitial infiltrate of lymphocytes, plasma cells, neutrophils and eosinophils.

The features of this case strongly suggest hypersensitivity pneumonitis.The culprit antigen was defined and the pigeons were removed so as to avoid continued antigen exposure. Additionally, the patient was treated with oral methylprednisolone followed by gradual taper.There was significant clinical and functional improvement.

Hypersensitivity pneumonitis is a granulomatous immunologic response of a sensitized host to inhaled biological aerosols. In the case of pigeon breeder's disease, high levels of bird antigen may persist for prolonged periods of time, despite removal of the offending birds.

C08
Diagnostic value of surgical lung biopsy in diffuse pulmonary disease: Comparison with clinical and radiological diagnosis

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Abstract
Objective: Surgical lung biopsy (SLB) is considered the final method of diagnostic modality in patients with undiagnosed diffuse pulmonary disease. Nevertheless, the effect of SLB on the diagnosis, treatment and outcome of the patient still remains controversial. The goal of this study was to verify the concordance of the preliminary diagnosis, based on non- invasive or minimally invasive diagnostic methods (HRCT scan, PET, bronchoscopy), with the pathological result of the SLB and the impact of the latter on the treatment of those patients.
Methods: Retrospective review of the experiences of SLB in our Institution, through VATS or mini-thoracotomy, in 280 consecutive patients during the past 5 years. The initial diagnosis was based on clinical settings, images and non invasive or minimally invasive diagnostic procedures and was compared with the pathological findings. We considered 3 major groups: diagnostic concordance (DC); new diagnosis (ND, including cases where there wasn't a prior diagnosis); and inconclusive (IC).
Results: Initial diagnosis included interstitial lung disease (34.6%), metastasis (33.9%), primitive neoplasm (10%), infectious pneumopathy (5%), others (2.5%) and no diagnosis (14%). The pathologic diagnosis after SLB comprised interstitial lung disease (40.7%), metastasis (20.7%), primitive neoplasm (14%), infectious pneumopathy (5.3%) and other lesions (13.6%). In 53.9% of patients there was a DC, in 40.4% a ND and 5.7% were IC. In 28.2% of the primitive pulmonary neoplasms the final diagnosis was unexpected. In 38.9% of patients with an initial metastatic diagnosis, this was excluded. For most patients (94.8%) with suspicion of interstitial disease a specific diagnosis could be made after SLB. There wasn't operative mortality and the morbidity was 1.0%.
Conclusion: SLB is a safe and accurate diagnostic tool for pulmonary infiltrates of unknown aetiology, with minimal operative morbidity and mortality. In our series, there was a significant discrepancy between the clinical/imagiologic findings and SLB, suggesting this diagnostic modality has the "gold standard" in undiagnosed diffuse pulmonary disease.

C09
Constrictive bronchiolitis – case report

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Abstract
The authors present a 35 year-old caucasian female patient, former-smoker, who worked for 10 years in an archeological field, with dyspnea, wheezing, productive cough and malaise in the last 5 months. Wheezing and rhonchi were present on chest auscultation.
The complementary evaluation revealed peripheral blood eosinophilia (9.9 % of the leucocyte differential-1000 cels/uL), mild hypoxemia (PO2-76 mmHg, breathing room air) and mild obstructive ventilatory deffect with normal diffusion capacity (TLCO). HRCT scan displayed diffuse ground glass attenuation, patchy peripheral opacities and air-trapping. Bronchoalveolar lavage showed neutrophilia (80%) and eosinophilia (8%) and a CD4/CD8 ratio of 0.9; the culture was positive for Branhamella catarrhalis. Transbronchial lung biopsy was inconclusive.
HRCT scan after an antibiotic course, besides ground glass attenuation areas, showed pulmonary infiltrates with a different distribution.
Anti-nuclear antibodies, anti-neutrophil cytoplasmic antibodies, immediate hypersensitivity skin test to Aspergillus, serum Aspergillus-specific IgE and IgG were negative.
VATS lung biopsy was consistent with constrictive bronchiolitis.
After two weeks of treatment with prednisone (0,75 mg/Kg/day) there was complete resolution of the symptoms as well as normalization of ventilatory impairment.

C10
Inflammatory markers in the bronchoalveolar lavage fluid and exhaled breath condensate of patients with pulmonary sarcoidosis

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Abstract
The relationship between proinflammatory markers concentration in bronchoalveolar lavage (BAL) and expired breath condensate (EBC) as well as cytology of the respi-

ratory tract obtained from BAL in sarcoidosis patients have not been evaluated. To examine this we analysed the levels of TNF-alpha, IL-6, VEGF, IGF-1 and PAI-1 in the EBC of patients with pulmonary sarcoidosis, also in comparison to their concentration in BALF. The relationship between cytokines concentration in EBC and BALF and other disease activity markers (BAL cytology, respiratory function measurements) has been evaluated as well. Most cytokines concentrations in breath condensate, as assessed by Elisa method, were comparable to and highly correlated with their levels observed in BALF: respectively TNF-alpha (3,79±1,78 pg/ml vs 3,34±2,81, r=0,7945, p<0,001), IGF-1 (7,76±5,9 ng/ml vs 6,09±4,44, r=0,9356, p<0,001), PAI-1 (0,81±0,42 pg/ml vs 0,94±0,43, r=0,8064, p<0,001). As an exception, there was no correlation between VEGF levels in condensate (31,99±10,57 pg/ml) and BALF (27,15±.6,71, r=0,03) as well as negative correlation for IL-6 (0,226±0,08 pg/ml vs 4,08 ±0,53, r=-0,469, p<0,01). Significant positive correlation between relative macrophage count in BAL and condensate content of PAI-1 and TNF-alpha as well as negative with IGF-1 was observed. Pulmonary function as assessed by TLco measuremet correlated with IGF-1 levels in condensates (r=0,725) and BALF (r=0,8215) only. Our data prove that quantitative evaluation of inflammatory markers in the expired breath condensate of sarcoidosis patients is possible. However EBC usefulness for noninvasive monitoring of certain markers disease activity needs further evaluation.

C11
Identyfication of t regulatory cells in the balf by flow cytometry

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Abstract

Immunologic alterations play important role in the pathogenesis of many lung disorders like: interstitial lung diseases, chronic obstructive lung disease, lung cancer. It was shown0that regulatory T cells (Treg, CD4+/ CD25+) play important role in the autoimmunity and regulation of host immune response.
The objective of this study was determination of lymphocyte subpopulation: T regulatory cells derived from bronchoalveolar lavage fuid (BALF) and from peripheral blood (PB).
Methods: We investigated patients with different lung diseases (pulmonary fibrosis, sarcoidosis, lung cancer, leukaemia) and healthy persons. BAL was performed routinely and the total and differential cell count was evaluated by microscopic examination. Flow cytometry method with the pairs of monoclonal antibodies anti: CD14/ CD45 and anti: CD4/CD25 was used for evaluate proportion of Treg cells. Expression of Fas on Treg cells was analysed using CD95/Cy5 antibody.
Results: Treg cells were identified in the BALF and in PB, as well. The median proportion of CD4+/ CD25+ cells as a percentage of lymphocytes in the BALF was 6.7% (range: 0.7%- 18.6%) and in the PB was: 14% (range 3,6% – 39%). These cells composed mean 29% of CD4+ BALF lymphocytes and 38,4% of PB CD4+ lymphocytes. We identified two populations of CD4+/ CD25+ cells: with low and high expression of CD25. The last may represe~t the real population of T regulatory cells. The mean proportion of CD4+/ CD25+ lymphocytes with high intensity of fluorescence in the BALF was 1,9% of the pool of lymphocytes and about 30% of the pool of CD4/CD25+ cells. About 100% of BALF Treg cells were positive to Fas receptor.
Conclusion: Identification of Treg cells in the BALF is possible by flow cytometry.

C12
11 years of BAL experience in Romania

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Abstract

Background and aim of the work: Bronchoalveolar lavage (BAL) is an extremely useful method for sampling cells and mediators from lower respiratory tract. We started our research lab from zero, and built up to a national excellence center in 11 years.
Method and results: 10320 products (BAL and bronchial lavage, BL) fluids have been processed, from patients aged between 6 and 88 years; over the 11 years of development, the bronchological sampling techniques have been improved (increased vitality of up to 95-98%; recovered vol. 70-75% and recovered cells 12-40 mil), together with gaining and securing the interest and trust of the pneumologists in the method's capacities.
Conclusions: Started in March 1995, our laboratory (the only one with this profile in Romania) managed to dismiss the insecurities of the medical community regarding the use of BAL as a powerful diagnostic and follow-up tool; the results will be presented following all etiological categories investigated; the technique has also been widely used for

TB-BL, considering the still very high incidence of tuberculosis in Romania (120 o/oooo).

Outlook: The big diversity and the huge number of lung disease cases we are faced with offers a wide perspective for research studies using BAL as a method for the better physiopathological understanding of the ensemble of events taking place in the human lung.

C13
Humoral immune response against mycobacterial antigens in BAL fluid from tuberculosis patients

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Abstract

The resistance to TB is cells-mediated but humoral response is common and may be correlated with the lack of effective local cellular defence mechanisms. The goal of the study was to evaluate IgG, IgA and IgM mediated humoral immune response against 38kDa and 16 kDa or 38kDa and LAM mycobacterial antigens in BAL fluid from patients with tuberculosis (TB) compare to non-tuberculous controls (NTB).

179 BAL fluids (BALF) (56 TB, 123NTB – 74 non-specific pulmonary infections, 19 lung cancer, 14 sarcoidosis, 14 mycobacterial infections other than tuberculosis, 2 healthy controls) were examined. Commercially available ELISA – based assays were used. Cut off established according to serial dilution and ROC curves. Mean IgG level against 38 + 16kDa was significantly higher in tuberculosis group compared to control ($p<0,05$ Three different dilutions of BALF: 1: 1; 1: 10 and 1:50 (100) were tested. Only for dilution 1: 10 obtained results allowed to differentiate TB group and control group. Mean IgG level against 38 + LAM was significantly higher in TB group compared to control ($p<0,0001$). Mean IgA and against 38kDa + LAM level was also higher in TB group compared to NTB ($p<0,05$). No difference was observed between TB and NTB group in titer of IgM antibodies. The findings of the study indicate that TB is associated with the presence of detectable levels of antibodies in the BAL F. Antibody response is highly heterogeneous. This phenomenon results from the balance between pathogen and host immune system. Examined tests detecting IgG in BALF can be used in combination with other diagnostic methods to increase diagnostic accuracy of pulmonary TB.

C14
Immuno-diagnosis of TB using BAL or induced sputum

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Abstract

Objective: To examine the role of bronchoalveolar lavage (BAL) and induced sputum (IS) in the immunological investigation of possible tuberculosis (TB).

Methods: BAL was incubated overnight with no antigen or PPD. Cells were fixed, permeabilised and then stained with monoclonal antibodies against CD3, CD4 and IFN;. The percentage of PPD-specific IFN; synthetic CD4+ T-lymphocytes (%CD4+IFN+) was identified using flow cytometry. Responses were also examined in IS and whole blood.

Results: 238 individuals had BAL. 111/238 were diagnosed with active TB with a median [range] %CD4+IFN+ of 13.45% [0-79.11%]. 106/111 (95%) had %CD4+IFN+ >1.5%. Median %CD4+IFN+ for 127 without active TB was 0.10% [0-27.10%]. 97/127 (76%) had %CD4+IFN+ <1.5%. Median %CD4+IFN+ in whole blood for 58 active TB cases was 0.19% [0-1.63%]. Positive and negative predictive values for active TB using a 1.5% cut-off in BAL were 78% and 95%. The assay worked well with HIV and also extra-pulmonary TB. In pulmonary TB assay sensitivity was 93% versus 77% for nucleic acid amplification testing. Most subjects with %CD4+IFN+ >1.5% without active TB had evidence of previous TB. 10 TB patients had paired BAL and IS. Median BAL %CD4+IFN was 12.05% [2.63-61.04%] versus 11.16% [0.51-23.79%] in IS. In total, 26 TB patients had IS with median %CD4+IFN+ of 4.49% [0-23.79%] (%CD4+IFN+ >0.5% in 24/26; >1%.in 22/26).

Conclusions: BAL and IS can be used in a highly sensitive diagnostic TB immunoassay with advantages over blood.

C15
Bronchoalveolar lavage in pulmonary tuberculosis diagnosis

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Abstract

Introduction: Early identification and diagnosis of active pulmonary tuberculosis (PTB) cases is essential to any program intended to control the spread of this significant public health problem. Due to the high incidence of tuberculosis in

Portugal (39/100 000), all the patients studied in our bronchology unit are submited to mycobacteriological evaluation.
Objectives: Evaluate the diagnostic accuracy for PTB of bronchoalveolar lavage (BAL).
Material and methods: We conducted a retrospective record review of all patients with pulmonary tuberculosis diagnosed in our bronchoscopy unit, between January 1999 and December 2005, who were submited to flexible bronchoscopy with bronchial lavage (BL) and BAL. 237 patients were included (168 males and 69 females),with mean age of 44,7 years (range 20-85). 86 (36,2%) patients were HIV+. BAL and BL samples were tested for Ziehl-Niessen (ZN) and Lowenstein-Jensen (LJ).
Results: 214 (90%) patients were diagnosed with BL samples and 141 (59,5%) with BAL. 23 (10%) patients were positive only in BAL samples. 186 of the 214 with BL samples presented LJ positivity and 28 had only ZN positive. In the 141 BAL samples, 109 had positive LJ and 32 had only ZN.
Conclusions: BL was more accurate in diagnosing PTB (90%) than BAL but 10% of the patients needed the BAL samples positivity for diagnosis.

C16
RBILD – clinicopathologic features

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Abstract
Background & aim: Respiratory Bronchiolitis (RB), described by Niewoehner et al in 1974, is a common finding in heavy smokers and is characterized by the presence of pigmented macrophages within respiratory bronchioles and adjacent alveoli. Later, Myers et al described RB associated with interstitial lung disease (RBILD). The aim of this study is to analyse a group of 8 patients with biopsy-proven RBILD diagnosed within the last five years, assessing epidemiological data, clinical and imaging features, lung function tests, bronchoalveolar lavage findings, therapeutic approaches and clinical evolution.
Results: The patients ranged from 28 to 63 yr of age and included 7 men and 1 woman. All were current smokers(13-60 pack years). All were symptomatic at presentation, with productive cough and shortness of breath being the commonest symptoms. Chest radiography showed predominantly reticular or reticulonodular shadowing, confirmed by CT scan but also showing ground glass opacification in 5 patients. Both restrictive and obstructive patterns were found in lung function tests, with a gas transfer deficit in 4 patients. Bronchoalveolar lavage was performed in 5 patients, revealing consistently a CD4/CD8 ratio lower than 1. The treatment of choice was smoking cessation and conservatory measures. All patients but 1 have remained stable or improved after a mean follow-up of 22 months.
Conclusions: The authors support that the diagnosis of RBILD should require an appropriate clinical setting (including smoking habits), specific imaging findings (like ground glass shadowing and centrilobular nodules), and the pathological confirmation, obligatory in the exclusion of more adverse interstitial lung disease, namely idiopathic pulmonary fibrosis.

C17
Differential cell count of bronchoalveolar lavage in healthy volunteers depends on volume

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Abstract
Bronchoalveolar lavage (BAL) is frequently used in the diagnostic work-up of patients with suspected interstitial lung diseases and its differential cell count may direct further clinical evaluation. To this end normal ranges are required. However, differential cell count depends on lavage volume, processing techniques, and smoking status. In this study we kept the BAL processing in the laboratory constant and analyzed the influence of volume and smoking status in a large cohort of 98 healthy individuals (57 non-smokers (NS), 41 smokers (SM)). Volume was categorized in low (LO, 100 to < 300 ml, median: 120 ml, n = 23), medium (ME, 300 to < 500 ml, median: 300 ml, n = 54), and large (LA, 500 to 700 ml, median: 600 ml, n = 19).
Recovery was similar in all volumes used ranging from 64 ± 8 % in ME to 76 ± 10 % in LA. A close correlation between BAL volume and cell recovery was observed in NS and SM ($p<0.0001$ and $p<0.005$ resp.) with up to 19 million and 56 million cells per 100 ml recovered BAL of NS and SM, respectively. In both NS and SM differential cell count was also influenced by volume with higher percentages of lymphocytes and lower percentages of alveolar macrophages in LA and vice versa in LO. Percentage of neutrophils was higher in LO than in ME and LA without significant differences between NS and SM. Only low numbers of eosinophils were observed without significant differences between volumes and smoking status.
Normal ranges for the three volume categories for NS and SM will be presented.

C18
Bronchoalveolar lavage fluid (BAL) in diffuse parenchymal drug related lung disease: Report of a series

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Abstract

Background: Diffuse parenchymal drug related lung disease is an increasing cause of potentially fatql acute or chronic pulmonary disease. Its identification is often complex and one of exclusion. Therefore, pathological data in correlation with clinical, laboratory and radiological features are helpful and might be often all necessary together for a definitive diagnosis.

Subjects and Methods: We retrospectively analyzed thirty-four subjects (23 males, 11 females; mean age 56.8±16) with diffuse parenchymal drug related lung disease, developed in 21 patients with baseline malignancy after a treatment with anti-neoplastic drugs in a chemotherapy regimen (oncological group), and in 13 patients with non-neoplastic baseline disease, treated by a single agent (non-oncological group). All patients underwent fiberoptic bronchoscopy (FBS) with bronchoalveolar lavage fluid (BAL) and transbronchial biopsies. In 4 cases a surgical lung biopsy was also performed.

Results: BAL findings were represented by: an increase in total cell number (>150.000/ml3) in 20 patients of the total 34 (58.8%); lymphocytosis (lymphocytes >15% of total cells) in 21 patients (61.7%); neutrophilia (neutrophils >4% of total cells) in 24 patients (70.5%); eosinophilia (eosinophils >2%) in 11 patients (32.3%). A decreased CD4+/CD8+ ratio (CD4+/CD8+ <1%) was found in 20 patients (58.8%), and an increased CD4+/CD8+ ratio (CD4+/CD8+ >2.4%) in 5 patients (14.7%). BAL was diagnostic per se in 8 cases of the total 34 (23.5%): 5 were lipoid pneumonia, 2 alveolar haemorrhage and 1 eosinophilic pneumonia. The most frequent histological patterns were: cellular interstitial pneumonitis (CIP) in 29.4% of cases (n=10), organizing pneumonia (OP) in 23.5% (n=8), diffuse alveolar damage (DAD) in 17.6% (n=6), lipoidic pneumonia in 14.7% (n=5), the remaining being alveolar haemorrhage, hypersensitivity pneumonitis and eosinophilic pneumonia. Patients with a DAD pattern presented significantly higher neutrophils in BAL as compared to patients with CIP, OP and HP (p=0.03). Although BAL lymphocytes showed a tendency to be higher in patients with CIP/OP/HP, they did not reach statistical significance, probably due to the low number of patients with DAD (n=6). Four oncological and 1 non-oncological patient died, all presenting with type II reactive cells in BAL fluid, 4 with a DAD pattern, 1 with CIP.

Conclusions: our series suggest that in most cases of diffuse parenchymal drug related lung disease, neither BAL findings nor lung biopsies are specific per se for diagnosis, but clinical, laboratory and radiological data are also necessary. However, BAL might be diagnostic per se in some specific patterns of diffuse parenchymal drug related lung disease, e.g. lipoid pneumonia, alveolar haemorrhage and eosinophilic pneumonia, without need for other invasive procedures. Moreover, BAL seem to have a prognostic role in these diseases.

C19
Pulmonary alveolar proteinosis (PAP): A case of successful pregnancy

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Abstract

There are very few reports on PAP and pregnancy. We report a case of successful pregnancy in a patient with PAP. A 36 year old female was first symptomatic at age 19. At age 23, after a lower respiratory tract infection, she was diagnosed as having PAP by pulmonary biopsy. Since then, multiple whole lung lavages (WLL) were performed when she was symptomatic. Otherwise she led a normal and active life despite important lung disease observed on chest x-ray and HRCT, and moderate restrictive lung disease. A set of two consecutive WLL (right and left) were done before she attempted to become pregnant. By the 25th week of pregnancy she noticed increased tiredness and she was found to dessaturate down to 88% with minimal exertion and she was started on supplemental oxygen with good result. At week 28 she was re-evaluated with HRCT which confirmed moderately severe PAP but no other new or different pathology. By this time her SaO2 was slightly better and it was decided that the risks of general anaesthesia and WLL were not justified and conservative management continued. Her SaO2 remained stable at greater than 90% from then on. She delivered at week 38 and 6 days pregnancy. An elective caesarean section under epidural anaesthesia was done and a healthy baby was delivered (Apgar 9/10). Prior to delivery her PaO2 in room air was 52 mmHg, 24 hours after delivery was 58.4 and 3 days latter was 79.8 mmHg.

C20
BALF CCR5 and CXCR4 receptors in HIV infection

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Abstract

The discovery that specific chemokine receptors act as co-receptors for HIV, allowed a better understanding upon the mechanisms underlying viral cellular entry and tropism.

Aims: To evaluate the expression of CCR5 and CXCR4 in BAL fluid from HIV infected patients, submitted to bronchoscopy for detection of opportunistic lung infections.

Material and Methods: 14 patients (9 males, 5 females), aged 39.6 ± 14.3 years, all HIV1 heterosexuals. In BAL fluid and in peripheral blood, we studied the receptors: CCR5, CD4 CCR5, CD8 CCR5, CCR5 M0, CXCR4, CXCR4 CD3, CXCR4 CD14, as well as the co-stimulatory molecule CD28, CD28 CD3, CD28 CD4, CD28 CD8 through monoclonal antibodies and flow citometry. In the statistical analysis, a T-Studant test and linear correlation was used.

Results: Drop of CD28 co-stimulatory factor in BALf; increase expression of CCR5 M0 in BALf compared with the peripheral blood; statistical significant differences between BALf and blood for the CXCR4 ($p<0.02$), CXCR4 CD3 ($p<0.006$), CXCR4 CD14 ($p<0.00002$).

Conclusions: The lost of CD28 co-stimulatory factor is probably related with immunological senescence. Both CCR5 and CXCR4 had an increased expression in BALf of these patients, particularly the CCR5 M0 and CXCR4 CD14, meaninw the important activation of lung macrophages. The over-expression of these receptors may have important implications in future therapeutic approaches, such as, its blockage.

C21
Smoking exposure effect on cytological and apoptotic parameters of BAL in smoking and NSCLC

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Abstract

Smoking exposure, as one of etiopathogenic factors of malignant lung diseases was investigated in relation with bronchoalveolar lavages (BAL) cytological and apoptotic parameters. BAL was performed in13 examinees; 7 of them were patients with diagnosis of NSCLC (Non-Small-Cell Lung Cancer). Apoptotic parameters in BAL specimens stained by TUNEL and differential cell counting of BAL specimens were performed using light microscopy. Smoking exposure (pack-years) was significantly higher in NSCLC patients in comparison with control smokers: 44.07±21.33 vs 1.8±1.6 ($p<0.001$). Significant increases of eosinophils ($p<0.01$), neutrophils ($p<0.05$), lymphocytes ($p<0.05$) and decrease of alveolar macrophages (AMs) ($p<0.01$) were found in patients with NSCLC in comparison with control smokers. Significant correlations of relative per cents of Foamy AMs and stage of apoptotic cells internalization by AMs and mast cells ($r=-0.87$, $p<0.05$ and $r=+0.93$, $p<0.05$, respectively) were found in control smokers. Nonparametric correlation analysis showed that significant correlations between Foamy AMs and apoptotic markers existed in control smokers. In NSCLC patients, significant correlations were found between eosinophils and mast cells and apoptotic parameters.Thus, cumulative effect of smoking exposure might be of great interest in observation of smoking induced tissue injury leading to oncogenesis.

C22
Apoptosis of alveolar lymphocytes (AL) in interstitial lung diseases (ILD): Its extension, alterations and clinical importance

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Abstract

Background: Activity of inflammation in ILD depends inter alia on decreased apoptosis of alveolar lymphocytes, AL. The extension of this process, its relation to other inflammatory markers, as cytokine secretion, and its clinical importance needs explanation.

Methods: AL and AM obtained from patients with silicosis, asbestosis, sarcoidosis (PS) and idiopathic pulmonary fibrosis (IPF) (n=13,18,57,18 resp.) were examined for: 1. cell cycle (sub-G1 late apoptosis peak) 2. TUNEL 3. Annexin V, Fas, Fas Ligand (FasL), BCL-2 and caspase-3 expression. 4. BAL routine cytology and immunotyping. BAL supernatants were tested with ELISA for IFNã; TNFá; IL4, IGF1, soluble Fas (sFas) and soluble FasL levels. Cell short-term cultures were performed in some cases.

Results: Average 1% of AL enters apoptosis (and 1% proliferates) in controls as detected by cell cycle analysis. Decreased AL apoptosis rate was found in Loeffgren's syndrome (LS), progressive PS and asbestosis (0.6±0.2, 0,5±0.2, 0.4±0.15 vs 1.1±0.5% in controls, median ± SEM). AL apoptosis rate was negatively correlated with total CD4 cell number (rs -0.33, p<0.02) and CD4/CD8 ratio (rs -0.25, p<0.005). Additionally, in 3 PS patients with subsequent disease remission massive AL apoptosis (up to 50% of cells) was observed. Serial BAL examinations performed in 7 cases of chronic PS showed increased AL apoptosis towards the rate observed in controls. Systemic steroid treatment in 3 PS and 5 IPF patients resulted in dramatic increase of AL apoptosis rate but had no influence on AM apoptosis. TNFα levels (significantly increased in LS, active PS, IPF and asbestosis) were negatively correlated with percentage of apoptotic AL (rs -0.31, p<0.001). Except negative correlation between sFas and AL apoptotic rate (p<0.05) other mediators seemed have no influence on BAL cell apoptosis (the observation proven additionally by BAL cell cultures).
Conclusions: 1. AL accumulation in ILD depends in part on AL apoptosis decreased rate. 2. Inhanced AL apoptosis may be applied as a marker of clinical improvement and/or local impact of steroid treatment. 3. TNFα and Fas, but not IFNγ, IL4 or FasL, seems to protect BAL immune cells. 4. The major AL subset regulated in ILD lower airways by apoptosis seems to be CD4 cells.

C23
Expression of interferon-gamma (IFNg) in BAL fluid of patients with selected interstitial lung diseases (ILD). Better prognosis in patients with increased CD4/CD8 ratio in pulmonary sarcoidosis (PS) and idiopathic pulmonary fibrosis (IPF)

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Abstract

Backgroung: IFNγ is active as a potent antifibrotic cytokine in interstitial lung diseases (ILD). T cells (acc. to Th1/Tc1 secretion pattern) are regarded as a main local source of IFNγ.
Methods: BAL fluid of 101 nonsmoking patients with ILD, incl. IPF(UIP), PS, extrinsic alveolitis (EA), asbestosis and silicosis (n=17,50,7,11,16 resp.) was tested for IFNã; levels (ELISA). Results were completed with BAL immunology/cytology and referred to clinical data.
Results: Increased IFNγ; levels were observed in non-treated patients with EA (7.8±2.1), IPF (6.1±1.8) and PS (7.9±1.7), whereas the results of pneumoconioses were similar to those obtained in the controls (n=15, 2.0±1.1 pg/ml, median ± SEM). The highest IFNγ concentration was found in Loeffgren's syndrome (10.2±2.4), the PS subgroup characterized with especially high CD4/CD8 ratio (10.5±1.2 vs progressive PS 5.3±0.7; p<0.05). IFNγ level in ILD was positively correlated with percentage of BAL lymphocyte (r Spearman +0.23; p<0.05), total CD4 cell number (rs +0.32, p<0.05) and CD4/CD8 ratio (rs +0.38, p<0.0001). In IPF/UIP group of patients with CD4/CD8<1 (n=8), IFNγ level was lower as compared to the group with CD4/CD8>1 (n=9): 2.8±1.3 vs 7.3±1.0 pg/ml. Steroid treatment caused insignificant decrease in IFNã; levels of serial lavages in 7 PS and 8 IPF patients.
Conclusions: The results are consistent with the view on protective role of IFNγ in ILD and may explain the better prognosis in patients with higher CD4/CD8 ratio in ILD with imminent fibrosis. CD4, but not CD8 seem to be the main local source of IFNγ in ILD.

C24
Expression of CCX CKR in pulmonary sarcoidosis

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Abstract

Objective: CCX CKR is a decoy chemokine receptor that specifically binds the chemokines CCL19, CCL25 and CCL21. CCL19 was previously found upregulated in pulmonary sarcoidosis. We have, therefore, investigated CCX CKR expression and its plausible role in this inflammatory disease.
Methods and results: CCX CKR mRNA was semiquantitated by RT-PCR in unseparated bronchoalveolar (BAL) cells from the sarcoid patients (S, n=29) and control, healthy subjects (C, n=9). CCX CKR transcripts were upregulated in the patients (mean±SEM); S, 0.82±0.10; C,

0.44±0.04; p=0.01. The highest number of transcripts was observed in patients with the most advanced chest X-ray (CXR) stage III by contrast to the initial stage I (S-I, 0.72±0.10; S-II, 0.85±0.20; S-III, 1.04±0.20, p<0.02). Immunocytochemistry localised the CCX CKR protein to ciliated bronchial cells. Flow cytometric fluorescent ligand uptake assay showed that these cells are able to internalize its ligand.

Conclusion: The CCX CKR expression by ciliated bronchial cells from sarcoid patients implicates this receptor in the modulation of immune and inflammatory reactions ongoing in the lung. Further investigations are required to characterise the regulation and functional significance of CCX CKR expression, mechanism of internalisation and fate of the ligand.

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Abstracts of Posters (P)

P01
Sarcoidosis – an unusual neurological involvement

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Abstract

The authors present a 39 year-old caucasian male patient, mason, non-smoker, previously healthy until October/2002 when he had two sequential episodes of uveitis responding to topic and systemic corticosteroids. After slow tapering he developed a neurological syndrome with nystagmus, right-sided Horner's syndrome, hypoesthesia and ataxic hemiparesis – Wallenberg Syndrome.

Cerebrospinal fluid revealed elevated protein levels. The MRI scan of the brain displayed a non-gadolinium enhanced right posterior laterobulbar lesion. The thoracic CT scanning revealed mediastinal and hilar adenopathies. Pulmonary function tests including carbon monoxide diffusion capacity (DLCO), flexible bronchoscopy and cardiac evaluation were normal. Bronchoalveolar lavage was inconclusive. Sarcoidosis was confirmed by mediastinal lymph node biopsy. High-dose corticosteroids were re-introduced with gradual recovery of neurological deficits.

Therapeutic tapering resulted in recurrence of ophthalmologic symptoms and appearance of new pulmonary lesions with the pulmonary function tests displaying a restrictive impairment and reduced DLCO (50,1%).

We present this case due to the exuberant neurological syndrome in a patient already under systemic steroid therapy, discussing the therapeutic options in this type of involvement.

Key-Words: sarcoidosis; neurological involvement; therapeutic.

P02
Is it sarcoidosis?

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Abstract

The authors describe a clinical case of a previously healthy 39-year-old woman, with complaints of dyspnea, dry cough, chest pain, fatigue and anorexia which started a month before admission.

The patient was a dressmaker and did not smoke. Chest radiograph showed a bilateral reticularnodular pattern and therefore additional work-up was carried out. SACE, serum clacium, 24 h urine calcium, pulmonary function tests, DLco and 67 Ga scan were normal.

Thoracic CT scan showed "... multiple well defined centimetric nodules with precise borders spread throughout both lung fields...".

Fibreoptic bronchoscopy showed no endoscopic abnormalities. Cytological and microbiological analysis were normal.Bronchoalveolar lavage (BAL) revealed: 69% monocytes/macrophages, 3%neutrophils, 0.5% B lymphocytes and 14% T lymphocytes (68% CD4 T lymphocytes and 26% CD8 T lymphocytes).The CD4 T cells were mostly of the Th1 type.

Serum T lymphocytes showed normal phenotype. CT-guided needle biopsy of a pulmonary nodule was performed but the result was inconclusive.

The patient underwent surgical lung biopsy which allowed tissue diagnosis of sarcoidosis (stage III).

Oral therapy with corticosteroids was prescribed and the patient was discharged to the outpatient consultation.

P03
Role of bronchoalveolar lavage in diagnosis of interstitial lung diseases – case report

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Abstract

Sarcoidosis is a multisystem inflammatory disease of unknown etiology that predominantly affects the lungs and intrathoracic lymph nodes and is manifested by the presence of noncaseating granulomas (NCGs) in affected organ tissues.

Pneumoconiosis is the general term for lung disease caused by inhalation of mineral dust. Silicosis is a fibronodular lung disease caused by inhalation of dust containing crystalline silica (alpha-quartz or silicon dioxide), which is distributed widely, or its polymorphs (tridymite or cristobalite), which are distributed less widely.

Bronchoalveolar lavage (BAL) is a minimally invasive diagnostic technique that yields insights into immunologic, inflammatory, and infeccious processes occurring at the alveolar level being useful in the setting of interstitial lung diseases.

The authors describe the case of a 68 years old woman, which presents with insidious non-productive cough, calcified and non-calcified limph nodes and parenchimal consolidations and nodules in both lungs on CT scans. She had an history of occupational dust (silica) exposure.

BFO with BAL and semi-distal biopsies were performed, and a diagnosis of sarcoidosis was achieved.

This case emphasises the contribution of BAL in the diagnosis of Interstitial Lung Diseases, as well as, the uncommon association of two fibrotic lung diseases.

P04
Intersticial pneumonia associated with rapaycin therapy – case report

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Abstract

Rapamycin is a recent immunosuppressive agent used with increasing frequency in solid organ transplantation. However, it has been associated with rare problems of pulmonary toxicity, such as interstitial pneumonia. These cases improved after dose-reduction or discontinuation of the drug. The authors present a case of a 58 year old male, engineer, non smoker, without occupational exposure risk.

In 1999, he was submitted to renal transplantation for end-stage renal disease secondary to IgA nephropathy. He was treated for five years with mycophenolate plus cyclosporine and prednisolone. Then the treatment was switched to rapamycin and prednisolone. Eight weeks after, he developed fever and dry cough.

Computed tomography showed evidence of bilateral ground glass opacities, with lower lobes predominance.

Lung function tests showed reduced carbon monoxide diffusion (DLCO-52, 4% and DLCO/VA-64,5%); without hypoxaemia.

Bronchoalveolar lavage (BAL) was negative for P. jiroveci, CMV, fungi, mycobacteria and bacteria. BAL showed predominance of lymphocytes with a CD4/CD8 ratio of 2,6.

Transbronchial lung biopsy was compatible with the hypothesis of interstitial pneumonia.

After dose reduction of rapamycin there was clinical, functional and radiological improvement. Currently, about two years later, the patient remains stable, with good graft function and normal lung tests.

Key-words: interstitial pneumonia, rapamycin

P05
Bronchoalveolar lavage features in sirolimus induced lung disease

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Abstract

Drug induced lung diseases (DILD) are an increasingly cause of morbidity. Many drugs have been described, causing several patterns of injury. Sirolimus is an immunosuppressive agent increasingly used in renal and other solid organ transplantation. Pulmonary toxicity has been recognized as a potential complication associated to this medication. Interstitial pneumonitis and more rarely alveolar haemorrhage have been described. BAL can be very informative in DILD either showing features that, although not specific, are commonly seen or ruling out other differential diagnosis, such as infection or malignancy. Sirulimus lung toxicity usually associates with a lymphocytic alveolitis, mainly of CD4+ type. The authors describe 4 cases (3 men and 1 woman) between 46-71 years, trans-

planted three years ago (1 patient) and 7 years ago (3 patients). All of them were medicated with micofenolato mofetil (less than 1 g/day), prednisone (doses between 5 and 10 mg/day) and sirolimus (2 mg/day in 3 patients and 3 mg/day in 1). All patients referred fever in the admission; 3 patients complained of dyspnoea and 2 had productive cough. Diffuse pulmonary infiltrates in HRCT scan were present in the four patients. BAL showed lymphocytic alveolitis in 3 casses, however with a different CD4/CD8 ratio (high-1, normal-1 and low-1); the BAL which showed a high CD4+ proportion had also neutrophilia. The other patient BAL showed severe haemorrhage. Pulmonary infections were ruled out by specific BAL staining and cultures. After the drug suspension, all patients experiment an improvement of the clinical picture. The BAL features described agree with the available data. However we found a more variability in CD4/CD8 ratio that didn't relate with different clinical or radiological presentation or even with a different outcome.

Key-words: sirolimus, lung toxicity, bronchoalveoar lavage

P06
Lymphocytic intersticial pneumonia in a HIV-positive adult woman

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Abstract

Lymphocytic Interstitial Pneumonia (LIP) is a rare lung disease characterized by infiltration of the interstitium and alveolar spaces by lymphocytes and plasma cells. It has a recognized association with AIDS, particularly in the paediatric population.

The case of a 36-yr-old HIV-positive woman, who developed dyspnoea and chronic cough, ground-glass attenuation with areas of obliterative bronchiolitis on chest CT and severe functional impairment with hipoxemia at rest, is reported.

Bronchoalveolar lavage was negative for infection and revealed lymphocytic cellularity. Thoracoscopic lung biopsy specimens were consistent with LIP.

She was started on Prednisolon 0,75mg/kg/d based on ideal weight with marked improvement of her clinical condition, radiological changes, pulmonary lung function tests and abnormal pulmonary gas exchange during formal exercise testing.

This case illustrates the rare association of LIP with HIV infection in adults.

P07
Lymphangioleiomyomatosis: A review of three cases

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Abstract

Object of study: the authors review three cases for clinical and radiological findings of lymphangioleiomyomatosis.

Material: three female patients with 51 years, 42 years, and 34 years.

Methods: the clinical and radiological findings of each patient were reviewed.

Results: one patient had a two years right thoracalgia and dyspnea. The chest X-ray showed a generalized, symmetric reticulonodular interstitial infiltrate, sparing the lung apices. High resolution lung computed tomography (HRLCT) showed bilateral diffuse thin-walled lung cysts with ground glass opacities throughout all lobes. The other patient presented to the emergency room with a chylotorax after a car accident with traumatic rupture of the thoracic duct. HRLCT showed multiple small non-confluent thin walled cysts, throughout all the pulmonary lobes, with varying sizes. The third patient presented with non-productive cough, dyspnea to major exercise, asthenia, and weight loss. A chest X-ray demonstrated left pleural effusion. The diagnostic thoracocentesis revealed pleural liquid with biochemical criteria of chylothorax. A posterior HRLCT showed multiple cysts with varying sizes, thoracic duct ectasia, and a right pleural effusion.

Conclusions: LAM is an uncommon interstitial lung disease that exclusively affects women, usually during their reproductive years. Affected patients typically present with dyspnea and cough. LAM is characterized radiographically by interstitial reticular opacities that may be subtle or obvious and may precede, accompany, or follow pneumothorax or chylothorax. The CT appearance of LAM is diagnostic when diffuse bilateral thin-walled cysts surrounded by normal intervening lung parenchyma are demonstrated in young women.

P08
Usual interstitial pneumonia – Case report

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Abstract

The authors present a 50 year-old caucasian female patient, farmer worker, non-smoker, with a gradual onset of

persistent non-productive cough, progressive exertional dyspnea, fatigue, malaise and weight loss. A history of arterial hypertension and Raynaud phenomenon of the extremities was present. End-inspiratory crackles prevailing in the lung bases were detected on chest auscultation and peripheral edema was observed. The rheumatologic evaluation was inconclusive.

The complementary evaluation revealed elevated erythrocyte sedimentation rate and lactate dehydrogenase, positive circulating anti-nuclear antibodies with a perinucleolar pattern. Antibodies anticentromere and anti Scl-70 were negative.

The chest radiograph revealed a bilateral reticular pattern with basal predominance and the high-resolution thoracic CT scanning exposed bilateral peripheral cystic images compatible with pulmonary fibrosis and mediastinal adenopathies. Pulmonary function tests were consistent with a restrictive impairment with reduced DLCO (49,5%). The resting arterial blood gases were normal and no dessaturation was observed during exercise. Bronchoalveolar lavage showed lymphocytosis (20%) with a normal neutrophil count (2%) and a CD4/CD8 ratio of 1,49.

The cardiac evaluation demonstrated congestive heart failure, valvular fibrosis and circumferential pericardial effusion. The pulmonary artery pressure was normal.

The nail fold microscopy was inconclusive. Esophageal manometry displayed lower esophageal sphincter incompetence and absent peristalsis in the distal esophagus.

Surgical lung biopsy was performed revealing a UIP pattern. The patient was submitted to treatment with prednisone and azathioprine with persistent pulmonary symptoms and worsening of ventilatory impairment.

At this point the patient still not fulfils the criteria for scleroderma, witch remains the most reliable diagnostic hypothesis. Pulmonary and rheumatologic clinical surveillance is maintained.

Key-words: usual interstitial pneumonia; scleroderma

P09
Pulmonary echinococcosis – A case report

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Abstract

Echinococcosis or hydatidosis is a zoonosis caused by the larval stage of four Echinococcus species, belonging to family Taeniidae. Echinococcus granulosus is the most common and cause cystic hydatid disease, endemic in Portugal. Humans are one of the intermediate hosts and the most frequently involved organs are liver and lungs.

The authors present a case report of a 76 years old patient, farmer, presented with a month-history of fever, persistent cough with cleary spumtum and a right-sided chest pain. Despite antibiotherapy there was no clinical improvement. The etiological study excluded neoplasy, tuberculosis or other bacterial infection and confirmed the diagnosis of hepatopulmonary cystic hydatidosis. The clinical features presented in this case were strongly suggestive of a pulmonary cyst rupture.

The therapeutic decision consisted in medical treatment with albendazole, followed by surgical excision of the hydatid cysts. The hepatic cyst surgery was performed before pulmonary intervention, but the patient succumbed during the procedure.

The authors want to emphasise a clinical entity that is often fatal, but sometimes under appreciated.

P10
Diagnostic difficulties in clinical evaluation of interstitial lung diseases (ILD) – Two case reports

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Abstract

Introduction: Interstitial lung pathology definite diagnosis needs a transbronchic or chirurgical biopsy for histological confirmation. Nevertheless, some clinical situations make these procedures difficult, namely by the clinical status of the patient or even by their refuse. In such cases, the diagnosis is made by considering clinical, imagiological and cytological information, as long as fitting in an evolutive and longitudinal classification pattern.

Objective: to present the difficulties in obtaining a definite clinical diagnosis in two case reports of ILD, the diagnostic value of therapeutics with positive clinical response and the prognostic value of bronchoalveolar lavage (BAL).

Methods: we illustrate our objective with two case reports of ILD:

– clinical data and test results of a 54 years old caucasian man, presenting with 8 days of pleuritic chest pain, low fever and dry cough, after returning from a tropical country and having done empirical therapeutics with azytromicine and NSAI's. On admission he presented diffuse pulmonary opacities on chest X-Ray.
– clinical data and test results of a 52 years old caucasian man, presenting with anorexia, adynamia, myalgias, swe-

ating and non productive cough for 5 days. While on emergency department he developed an ARDS needing invasive mechanical ventilation with a chest X-Ray showing, bilaterally, areas of parenchyma infiltration.

Conclusion: we emphasize the uncommon and severe presentation of these two cases of ILD and the diagnostic and therapeutic option we have made to achieve a clinical resolution.

P11
Pulmonary alveolar proteinosis

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Abstract

Pulmonary alveolar proteinosis is a rare disorder in which lipoproteinaceous material accumulates within alveoli. The clinical course of the disease is variable, ranging from respiratory failure to spontaneous resolution. An important feature of the disease is susceptibility to pulmonary infections, sometimes with opportunistic organisms.
The authors present the case of a woman, 59 years-old, non-smoker sent to Pneumology consultation due to dyspnoea and dry cough. At physical examination, she had inspiratory crackles in the inferior two-thirds of both hemithorax. The chest radiograph had a bilateral alveolo-interstitial pattern. Computed tomography scanning showed bilateral pulmonary consolidation and thickening of the interlobular septa, some regions of geographic ground-glass. Pulmonary function tests revealed mild restrictive defect, with reduction in carbon monoxide diffusing capacity. Blood gases: pH-7.449; pO2-67 mmHg; pCO2- 60.5 mmHg; HCO3- 24 mmol/L. The bronchoalveolar lavage had milky appearance, PAS-positive, phospholipoproteinaceous material suggesting alveolar proteinosis. She remained in clinical surveillance, without need of bronchoalveolar lavage, with spontaneous and complete resolution after three years of follow-up.

P12
Pulmonary tuberculosis presenting as a cavity

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Abstract

Object of study: the authors present an atypical presentation of pulmonary tuberculosis.
Material: review of the clinical process of the patient.
Methods: the clinical, laboratorial, and radiological findings were reviewed.
Results: a 43 years old male patient was referred to our department with the radiological and clinical diagnosis of right pneumonia and partial respiratory insufficiency. The chest X-ray showed a round opacity with an air-fluid level and thick walls localized to the upper right lobe. The lung Computed Tomography demonstrated a cavitating lesion at the posterior segment of the upper right lobe with an air fluid level. There was an associated pneumonic infiltrate with air broncogram. During his stay he made several antibiotics with no clinical and radiological response. The examination of the sputum collection revealed no mycobacterium tuberculosis as well as the bronchic lavage. The diagnosis was established by the culture of this lavage that identified Mycobacterium tuberculosis complex. The patient was referred to the local tuberculosis treatment institute.
Conclusions: tuberculosis may be confused with several other pulmonary parenchymal infections, with the same clinical and radiological findings. In this case the diagnosis was made by the culture of the bronchoalveolar lavage.

P13
Tuberculosis – a cause of spontaneous pneumothorax

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Abstract

Spontaneous pneumothorax is a rare complication of active pulmonary tuberculosis, however, pulmonary fibrosis due to tuberculous sequel is a common cause for secondary pneumothorax.
The Authors report the case of a 27 years-old male patient, smoker, previously healthy, hospitalized with the diagnosis of right spontaneous pneumothorax with pulmonary collapse. Chest radiograph, performed after the placement of a chest tube, showed expanded lungs and bilateral reticulonodular infiltrate.
Test evaluation allowed the diagnosis of pulmonary tuberculosis in a patient with subpleural bullae and residual fibrotic lesions.
The patient had a clinical and radiological favourable outcome with antituberculous therapy.
In this case, the authors emphasises the fact that a patient with several risk factors for primary spontaneous pneumothorax – biotype, tabagism, subpleural bullae and residual fibrotic lesions, had a pneumothorax secondary to pulmonary tuberculosis, which is an infrequent situation.

P14
Pulmonary tb in patient with sarcoidosis

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Abstract

The authors describe the clinical case of a 41 year-old man, admitted with community acquired pneumonia and hypoxemia in a context of classical clinical features for respiratory infection extended in time. Personal history for athsma controlled with appropriate medication, cutaneous sarcoidosis (on corticotherapy for 1 year, stoped in 1999) and Perthes disease. Once the clinical diagnose of, cutaneous sarcoidosis was made, the patient went to the pulmonology physician. He ask for some complementary study including Bronchoalveolar lavage who revealed a CD4+/ CD8+ of 4,5 who were determinant for establish the diagnosis for systemic sarcoidosis.

The chest x-ray show bilateral consolidation of the lung parenchyma. Direct microscopy was positive for AFB which conditioned the implementation of antituberculous agents. The sputum culture was positive for Mycobacterium tuberculosis.

Pulmonary TB have increase incidence in immunocompromised patients, and the corret diagnosis with appropriate therapy is essential in controlling the disease without lung damage.

This is a clinical case of the same patient with two granulomatous diseases.

P15
pH breath condensate in atopic wheezing children

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Abstract

Objective: To compare pH in exhaled breath condensate (EBC), between atopic and non-atopic wheezing patients.

Methods: 53 children with a wheezing history in the last 12 months were selected at primary schools of a Portuguese inner-city (Viseu) using the ISAAC questionnaire. All of them were submitted to eNO measurements and EBC collection in order to evaluate bronchial inflammation. EBC pH was analysed on all samples after deaeration with argon. For those who were under asthma regular treatment, medication was stopped three weeks before.

Results: 31 males and 22 females (mean age of 7 ± 1.1 years) were studied. 19 children were sensitized to at least one airborne allergen and 34 didn't. For the sensitized children, the median value for eNO was 22 ppb (interquartile: 16-32.5 ppb) and the median value for EBC pH was 8.41 (interquartile: 8.29-8.44). For the non-sensitized children, the median value for eNO was 9 ppb (interquartile: 6.25-14.75 ppb) and the median value for EBC pH was 8.40 (interquartile: 8.20-8.50). Statistical differences were found for eNO between this two populations ($p<0.0005$). No differences were found for EBC pH (p: 0.65).

Conclusions: EBC pH is similar on atopic and non atopic wheezing patients.

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P16
Corticosteroids in sarcoidosis: A decision rule based approach

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Abstract

Sarcoidosis is a multisystem disorder of unknown cause. The clinical expression, natural history and prognosis are highly variable, with a tendency to wax and wane, either spontaneously or in response to therapy, usually corticosteroids. The use of corticosteroid therapy remains controversial, although the perception that progressive symptomatic disease should be treated has become generally accepted. The criteria applied to evaluate this progression and monitor the disease over time is in continuous change. Over the last years, the application of Operations Research/Decision Aiding techniques in Medicine has become a useful tool. In this paper, the authors propose a decision rule based approach to derive a set of rules that will define the relevance of a set of attributes (condition attributes), applied to identify those patients in need of corticosteroids therapy (decision

attribute). From a sample of 33 patients with biopsy-proven Sarcoidosis, the condition attributes considered were: age, clinical features, laboratory findings, diffusion capacity, radiological stage, CT scan, bronchoalveolar lavage, Gallium scan, and extra-pulmonary involvement. Each of these attributes had a set of sub attributes (extra-pulmonary involvement assessed skin, gastrointestinal and ocular lesions (no patients presented with CNS or cardiac involvement)). Three condition attributes (age, radiological stage, CT scan) were considered unnecessary for the decision, while the others correlated in different degrees with the decision attribute. Through the application of Rough Set Theory, decision rules (in terms of if these symptoms/findings, then this decision) were derived after computing the solution of a Boolean function.

P17
Bronchoalveolar lavage in sarcoidosis: Is there a role for neutrophils?

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Abstract

Introduction: Lymphocytes percentage in Bronchoalveolar Lavage (BAL), especially CD4/CD8 ratio may be helpful in establishing the diagnosis of sarcoidosis. Some studies suggest a role for neutrophils, especially in what evolution of disease is concerned. However, the real association either with sarcoidosis main characteristics or with its outcome has not yet been established.

Aim: Study of BAL neutrophils association with clinical, functional, radiological and outcome in patients with sarcoidosis.

Material and Methods: 152 patients with sarcoidosis were included. Clinical presentation, functional, radiological and BAL features were studied as well as the patients' outcome. The statistical analysis was carried out by using SPSS 14.0® programme.

Results: The mean age was 35 years (17-69) and predominantly female (64%). Cough (48%), dyspnea (43%) and erythema nodosum (28%) were the most frequent clinical presentations. Lung Function Tests: normal-53%, obstructive pattern-27%, restrictive pattern-13%, mixed pattern-6%. Radiological stages: I-38%, II-47%, III-8%, IV-7%. Reticulonodular and micronodular were the most frequent radiological patterns. BAL median values: total cell count-2.6x105, lymphocytes-38%, CD4/CD8-4.5, neutrophils-1%. Extrathoracic involvement was present in 30% of patients. A chronic course was observed in 45% of patients. We found statistically significant differences of neutrophil percentages among categories of lung function tests (p=0.027), radiological stages (p=0.002) and radiological patterns (p=0.033). Significantly higher percentage were found for restrictive pattern (5.5%), radiological stages II and IV (5.8% and 5.9% respectively), reticular and fibrosis radiological patterns (5.1% and 8.2% respectively).

Conclusions: According with our results neutrophils seems to have a role in the pathogenesis of the disease associated with a more severe presentation. However considering all the patients studied we haven't found any influence in the natural history of the disease.

P18
The reflection of the diffusion lung capacity changes on the bronchoalveolar lavage cytology in the newly diagnosed sarcoidosis

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Abstract

Background: the presence of sarcoidic granulomas in the lung tissue could result in a functional impairment and in the changes of the bronchoalveolar lavage (BAL) cellularity. The most sensitive test for the detection of the lung involvement is the diffusion lung capacity (DL,co).

Aim: to assess whether different degrees of the diffusion lung capacity alteration are reflected in typical patterns of BAL cytology of patients with sarcoidosis.

Methods: the retrospective study included 67 patients (35males), aged 37.1±11.4 years with newly diagnosed sarcoidosis. All patients underwent chest X-ray and diffusion capacity of the lung for carbon monoxide measurement. The patients were distributed in 4 groups depending on DL,co value: 1 with normal gas changes, 2 (DL,co 60-80%), 3 (DL,co 40-60%) and 4 (DL,co < 40%). The BAL's cellular populations were compared between the groups.

Results: there was no statistical significant difference of BAL's cytological pattern between the patients with different values of DL,co.

Conclusions: the BAL's cytological features did not reflect the severity of the lung functional impairment.

P19
Bronchoalveolar lavage in pulmonary sarcoidosis

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Abstract

Aims: Our aim was to evaluate the demographic, clinical, radiological and BAL characteristics of 60 patients with histological/clinical/laboratorial evidence of pulmonary sarcoidosis who underwent BAL as part of their initial diagnostic evaluation. Analyze the correlation between BAL findings and stage/prognosis.

Method: Retrospective study of sarcoidosis patients' files that underwent BAL. Sixty files were analyzed and the population was characterized according to age, sex, radiological staging at onset (modified Scadding criteria), DLCO, FVC, BAL results, histology confirmation and disease course. The obtained data were analyzed using specific statistic software.

Results: Mean age 36.4 yrs. Female 53.3%, male 46.7%. Radiological staging (%): stage I/II/II/IV: 35/53.3/11.7/0. BAL findings (%): lymphocytic alveolitis 75.4, normal 8.8, lymph/eosin alveolitis: 5.3, lymph/neutr alveolitis 3.5, other 7.1; CD4/CD8 ratio >3.5: 64.6%, increased CD8: 4.2%. DLCO mean 91.8%, FVC mean 87.8%. There was histological confirmation in 51.7%. Treatment was started in 65%. Complete remission was achieved in 23.3% of all patients. 20% patients had progression of the disease.

We did not find any relationship between neutrophylic alveolitis and lung function or evolution of disease. Statistic significance was found between neutrophylic alveolitis and worse stage (Chi-square test, $p<0.05$)

We did not find any relationship between CD4/CD8 ratio and stage or disease course or lung function.

P20
High report of tuberculosis among brick workers could be an occupational factor?

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Abstract

Object of Study: At present and after HIV epidemic, TB is the second infectious disease in the world. Somebody is high risk for TB involvement and they could be involved under some occupational factors. One of them is Brick workers who are exposed for some occupational and environmental factors which are irritant for lung. The main purpose of this study is passive case finding and report of incidence and prevalence of TB among Brick workers of Isfahan Province, Iran.

Materials and Method: By considering of data of centre of health department of Isfahan (2000-2005) and also data of TB for Brick workers of Isfahan, their demographics characteristic have been recorded.

Results: On The base of results of this study, the brick workers are situated in 3 areas of Isfahan. In these areas the report of incidence of TB among Brick workers are as follow: Isfahan (16.2%, 33.9%), Aran-Bidgol (9.1% -20%) and Borkhar-Meymeh (14.7% -44.4%).

Summaries and Conclusions: By considering of these results, Borkhar-Meymeh and Aran-Bidgol are reported to have highest (44.4%) and lowest (9.1%) of TB report.

It seems this finding have a direct relation with number of brickers and number of non residential workers (Afghanis) in these areas. On the base of these reports and also the probable relation of TB incidence and occupational factor, it suggests having a more observation and following up for these workers.

Key-words: Brick workers, Occupational health, TB

P21
Natural killer T cells (NKT) in bronchoalveolar lavage of patients with sarcoidosis

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Abstract

Introduction: NKT cells are a lymphocyte subset that is distinct from conventional T cells and NK cells. They coexpress T and NK receptors and may represent cytolytic effector T cells or distinct T cell lineage such as CD1d-restricted NKT cells, which are unique in their rapid production of large quantity of both Th1-biased and Th2-biased cytokines, particularly IFN-, TNF and IL-4. It was recently showed that NKT cells could also play an important role in immunologically mediated interstitial lung diseases.

The AIM of our study was to examine the pulmonary NKT-cell numbers and distribution in bronchoalveolar lavage (BAL) in patients with acute sarcoidosis manifesting as Löfgren's syndrome and in patients with newly diagnosed, untreated sarcoidosis.

Materials and Methods: We included 62 patients (35F, 27M) classified into two groups: Löfgren's syndrome (9F, 5M) and others (26F, 22M). BAL was performed with flexi-

ble fiberoptic bronchoscope (Olympus Optical Co Ltd, Tokio, Japan). The phenotypes of BAL lymphocytes were determined by flow cytometric analysis in specimens with >15% of lymphocytes, using FITC or PE conjugated monoclonal antibodies. Natural killer T cells (CD3+CD16/56+), helper (CD3+CD4+) and suppressor (CD3+CD4+) T cells, NK cells (CD3+CD16/56+) and B lymphocytes (CD3-CD19+) were scored in percentages of lymphocytes. **Results:** We found slightly higher frequency of pulmonary NKT cells in patients who were presented with Lofgren's syndrome (median (range); 4% (1-15)) in comparison to those with newly diagnosed, untreated sarcoidosis (2% (0-16), but not to statistical significance (P=0.073; Mann-Whitney test). There was no significant difference between other lymphocytes subsets. **Conclusions:** These results suggest the possible role of NKT cells in regulating inflammatory process in acute sarcoidosis, however further studies are needed to confirm these results.

P22
Study of medicinal effect of roncoleikin in vitro at macrophages of bronchoalveolar fluid

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Abstract

It has been worked out the model for investigation of roncoleikin medicinal effect in vitro at phagocytes of bronchoalveolar fluid. Bronchial lavage was centrifugated at 1,5ths revolutions per minute during 10 minutes. Roncoleikin was added to incubative mixture in concentration 250 and 2,5 mg per 1ml of incubative mixture. Period of incubation of bronchoalveolar lavage cellular elements with preparation made 30 minutes at 37˚C. Phagocytic activity and respiratory metabolism of imunnocompetent cells were estimated by the modified method Park, prodigiosan was used as activator.

Roncoleikin in concentration 250mg in 1 ml of incubative mixture rose phagocytic activity of immunocompetent cells per 12,6%±0,9% (p<0,001), total quantity of actively metabolic phagocytes per 23%±1,4 (p<0,05) and the level of intracellular metabolism of some cells of monocytic-macrophage link per 0,19%±0,04 (p<0,05). Roncoleikin addition in concentration 100 times less the previous one didn't influence on immunologic parameters. Roncoleikin in vitro in concentration 250mg in 1ml 0f incubative mixture impacts on activity and intracellular metabolism of phagocyts in bronchoalveolar fluid.

P23
Comparison of alveolar cell populations, nk and nkt cells between cop/boop and eosinophilic pneumonia

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Abstract

Aim of the study: To evaluate bronchoalveolar lavage fluid (BALF) findings in patients with COP/BOOP and eosinophilic pneumonia (EP) and to investigate any potential differences between these two groups.

Patients and Methods: BALF from 59 patients (32 COP/BOOP and 27 EP, mean age 58.03 5 17.51 years) were analyzed. BALF total cells and cell differentials were counted while CD3+, CD4+, CD8+, CD19+ and cytotoxic lymphocytes CD3-CD16/56+ (NK cells) and CD3+CD16/56+ (NKT cells) were determined by flow cytometry.CD4/CD8 ratio was also calculated.

Results: Statistically significant differences between COP/BOOP and EP were observed in percentages of lymphocytes (p= 0.000), eosinophils (p=0.000) and NKT cells (p=0.001). No differences were observed in CD4 and in CD8 cells between the two groups. In patients with COP/BOOP a significant negative correlation between NK and T- cells was observed (p=0.000, r=-0.684) whereas in patients with EP a significant positive correlation between percentages of eosinophils and NK-cells was observed (p=0.000, r=0.846).

Conclusions: Though both groups showed similar cell profiles in CD8 and NK cytotoxic cells, they displayed different profiles concerning NKT cells.

P24
BOOP – Experience of a pulmonology ward

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Abstract

BOOP (Bronchiolitis Obliterans Organizing Pneumonia) is a physiopathologic syndrome associating suggestive clinical and imaging features, together with histopathologic studies showing buds of connective tissue in the lumen of the distal pulmonary airspace. Bronchoalveolar lavage (BAL) may assume characteristic patterns and help in differential diagnose.

The study is a retrospective review of all patients with BOOP,

diagnosed in the Pulmonology Ward of CHC, between 2000 and 2005.

Eleven cases were diagnosed. Six patients were female and five were male; average age was in 54,8 years; ten patients were non-smokers and one was ex-smoker; five patients had co-morbidities; mean duration of symptoms was 62,1 days; initial symptoms were dyspnea (8 patients), cough (7 patients), fever (5 patients) and weight loss (2 patients); the majority (9) of patients had been given multiple antibiotics before the diagnosis; crackles were heard in 6 patients, fever in 6 patients and tachypnea in 5; chest X-ray showed bilateral alveolar opacities in 6 cases, focal pneumonia in 3, linear opacities in 1 and multiple bilateral nodes in 1; lung function testing, performed in 7 patients, showed a reduction in the diffusion capacity in 5 (average DLCO/VA of 67.1%); BAL was performed in 8 patients, and revealed an increase in the percentage of lymphocytes in 7, with CD4/CD8 of 1.4 in average; histopathologic studies of pulmonary biopsy were diagnostic in all cases; nine patients were given corticosteroids; resolution was favourable in all patients except one who died.

Of the parameters we looked at we emphasize: the presence of symptoms during long periods before diagnosis and administration and failure of multiple systemic antibiotics; agreement between imaging and those published in the literature; the increase in lymphocytes in the BAL, although the ratio CD4/CD8 was not usefull for diagnosis; the good response to corticosteroids and non recurrence in our patients.

Key-words: BOOP, Bronchoalveolar Lavage (BAL).

P25
Insulin-like growth factor-I (IGF-I) expressed in lower airways of patients with interstitial lung diseases (ILD) is active as mitogen of immune cells and antiapoptotic protective agent of epithelia

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Abstract

Background: Alveolar macrophages (AM) are known as a source of IGF-I in lower airways. Little is known about expression of IGF-I in other alveolar cells, incl. lymphocytes (AL), and about a local role of this cytokine in physiological conditions and in ILD.

Materials and Methods: BAL was carried out in patients with silicosis, asbestosis, idiopathic pulmonary fibrosis (IPF) and sarcoidosis (n=13, 8, 12, 56, resp). AM and AL were studied for a) IGF-I, IGFR1, BCL-2, Fas and Fas Ligand expression; b) cell cycle (incl. sub-G1 apoptosis peak); c) TUNEL. IGF-I levels in BAL supernatant were examined with ELISA. A549 cells were cultured as a model of lower airway epithelial cells.

Results: IGF-I was present in AL of all tested groups. The number of IGF-I+ AL was significantly higher in IPF (52 ± 6.7%) and in sarcoidosis (48 ± 5.7 vs 29 ± 6.3% in controls, $p<0.05$). ELISA-tested IGF-I levels were significantly increased in asbestosis and Loeffgren's syndrome (18,9± 5.7 and 19.1± 3.5 resp. vs 10.3± 1.3 ng/ml in controls, $p<0.05$). IGF-I expression in lower airways did not correlate to VC and other lung function tests. Percentage of IGF-I+ AL was significantly correlated with parameters reflecting AL and AM cell proliferation (e.g. AL IGF-I+ vs AM in S phase of cell cycle: rs +0.50, $p=0.001$) and with BCL-2 expression, but not with apoptosis. However, IGF-I antiapoptotic activity was found in epithelial cells, since A549 cells transfected with vector pMT-AG-TH Anti-IGF-I (which tergets IGF-I gene promoter) demonstrated massive apoptosis, increased percentage of FasL+ cells and proliferation inhibition.

Conclusions: 1. AL express IGF-I in normal conditions and in ILD, especially in IPF and sarcoidosis. 2. In our material there was no evidence for profibrotic activity of IGF-I. 3. The cytokine seems to be active as mitogen of alveolar immune cells and antiapoptotoc protective agent for epithelia.

P26
Multinucleated giant cells in BALF – Granulomatous *vs* non-granulomatous ILD

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Abstract

Aim: To estimate the frequency and type of multinucleated giant cells (MGC) in BAL fluid of the patients with ILD and possible differences between granulomatous and non-granulomatous diseases.

Materials and Methods: Retrospectively 44 BAL fluid specimens of patients with ILD were examined. Granulomatous ILD were diagnosed in 22 patients (17 sarcoidosis, 4 tuberculosis and 1 histiocytosis X), and in other 22 patients non-granulomatous ILD (10 IPFs, 1 asbestosis, 1 eosinophilic infiltrate, 3 lung manifestations of collagen-vascular diseases and 7 non-specified ILD). MGC were cells having 3 or more nuclei, separated in groups according to cytomorphological features and number of nuclei. Frequencies, distribution of MGC in BAL fluid of granulomatous and non-granulomatous ILD and differences among frequencies in MGC groups were calculated.

Results: MGC were classified in 3 groups: alveolar macrophage–like (AM-MGC), Langhans or foreign body type MGC (LF-MGC) and non-specific MGC (NS-MGC). Number of MGC in non-granulomatous ILD was higher (n=191) than in granulomatous ILD (n=177), without statistical significance. Number of LF-MGC was statistically higher ($p< 0,05$) in granulomatous ILD. Number of AM-MGC was statistically higher ($p<0,05$) in non-granulomatous ILD.

P27
Diversity of BAL cell profiles in interstitial lung diseases

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Abstract

Characteristic BAL cell profiles are defined for common ILD and expressed as average values. BAL cell distribution pattern in ILD differs from normal type. Object of study was to determine cell frequency distribution and to show mixed cell profiles in ILD.

We analyzed 521 BAL specimens of ILD (308 sarcoidosis, 60 EAA, 89 IPF, 64 CVD with lung involvment). Specimens were representative (recovered volume of instilled fluid >30%, cell viability >60%, TCC >50 cells/µl, epithelial cells <10%). Cell differentials were done by counting 200 cells. Lymphocytic subpopulation were determined by flow cytometry in specimens with >15% lymphocytes. Univariant analysis was used to test for normal distribution, and analysis of variance was used to compare differences between average values. Tukey's test was used to find the means that are significantly different from each other.

26% specimens of sarcoidosis had normal value of TCC. Lymphocytosis was observed in 76% of specimens and half of specimens had only lymphocytic increase while others were of mixed type. 45% of specimens had CD4/CD8 >5 and 42% of specimens had normal or decreased CD4/CD8. Neutrophils and/or eosinophils were slightly or moderatly increased. EAA had significantly higher average value of TCC than sarcoidosis. There were more specimens with the highest values of TCC. Extreme lymphocytosis was frequently observed and was part of mixed cell profile. Only 6% of specimens had increased CD4/CD8. Most of specimens in IPF had increased TCC. Mixed cell alveolitis was the commonest type and usually with decreased CD4/CD8. Similar to sarcoidosis, in CVD 25% specimens had normal TCC. Lymphocytosis was observed in one third of specimens. There was mixed cell alveolitis with increase of neutrophils, eosinophils and macrophages. CD4/CD8 was decreased.

We conclude that mixed type of BAL cell profile with increased TCC and decreased CD4/CD8 is the commonest in EAA, IPF and CVD. Pure lymphocytic alveolitis with significantly increased CD4/CD8 is common in sarcoidosis.

P28
Pulmonary alveolar microlithiasis: 12 year follow-up

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Abstract

Pulmonary alveolar microlithiasis (PAM) is a rare idiopathic condition that is relatively common among Turks. About half the reported cases involve more than one member of a family, but the genetics of inheritance remains uncertain. We report on an initially asymptomatic, nonsmoking 24-year old Turkish man, with PAM followed over a period of twelve years. He presented in 1994 with Guillain Barre Syndrome, from which he made a rapid recovery. However, he was found to have an abnormal chest x-ray with diffuse alveolar and nodular infiltrates in both lungs. Thoracic CT showed diffusely distributed dense micronodular opacities. Fiberoptic bronchoscopy showed no endobronchial pathology. Bronchial washings and bronchoalveolar lavage were negative for acid-fast bacilli and malignant cells but showed a microlith. A transbronchial biopsy secured a diagnosis of PAM. A radioisotope bone scan showed diffuse and intense uptake throughout both lungs. At this time, he had no respiratory symptoms. All first-degree relatives were examined and one brother was found to have radiologically more severe PAM. Over a period of tewelve years, the proband s FVC has declined an average fall of 46 ml/year. His FEV1 has fallen by 70 ml/year.

P29
Suberosis: Review of clinical evolution in two different groups

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Abstract
Background: Suberosis is a hypersensitivity pneumonitis-immunologically mediated, resulting from repeated inhalation of moldy cork dust.
Aim: Characterization of two different groups in a portuguese population with Suberosis.
Material and methods: Retrospective study based on files analysis from patients with Suberosis at 1986 and 20 years after chosen in an alleatory way. Characterization: age, sex, smoking habits, co-morbidities, clinical and radiological presentation, lung funtion and bronchoalveolar lavage (BAL).
Results: 32 patients, mean age of 39±4.3 yrs, male-81.2%, female-18.8%. Two groups of presentation: subacute-8 (I) and chronic-24 (II); mean exposure of 22.4±12.2 yrs; mean time cessation of 10.1±3.0 yrs. We analised clinical behaviour and lung function at diagnosis and 20 years later. BAL and radiology were performed at exposure. Restrictive defect and lung diffusion (DLCO) impairment were the most frequent functional abnormality, particularly in group I. DLCO improved after work cessation. BAL revealed high cellularity-lymphocytic alveolitis with 50.64±12.7% lymphocytes. BAL CD8+ lymphocytes predominated and all had CD4/CD8 ratio < 1. Lymphocitosis was higher in group I – 59.56%. Ground glass opacities were the predominant radiological pattern in HRCT in group I – 50%.
Comments: Subacute and chronic presentations predominate in Suberosis. Clinical behaviour of these groups have subtle differences. Intensity of exposure may be important, but new biomarkers and more studies are needed.

P30
Evaluation of airway inflammation by induced sputum and bronchial hyperresponsiveness in adolescents with well-controlled asthma

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Abstract
This study aims to describe the correlation between induced sputum inflammatory cells bronchial hyperreactivity and lung function in adolescents with well-controlled asthma. In 34 atopic adolescents (mean age 12.7+3.4yrs; 14 females) with stable asthma, taking a median dose of 400 μg inhaled corticosteroids (ICS) per day, bronchial hyperreactivity to methacholine (PD20M), lung function (forced expiratory volume in one second (FEV1), and induced sputum cellularity were assessed. Sputum was induced by hypertonic (4.5%) saline inhalation and cell counts were expressed as non-squamous cells percentage. Correlations between variables were assessed by the Spearman correlation coefficient (rs). A satisfactory induced sputum sample was obtained in 19 (56%) of the subjects. After sputum induction peak expiratory flow values were similar to those at pre-salbutamol baseline with a difference of 0.3±19.9 L/min. Sputum contained, median (range), non-squamous cells 1.0(0.2-3.3)x106ml-1, with 51.4% (10.8-69.2) macrophages, 15.5% (1.6-68.3) neutrophils, 4.0% (0.7-13.5) lymphocytes, 2.0% (0-46.1) eosinophils and 18.1% (3.1-32.4) bronchial epithelial cells. Correlations between sputum eosinophils and PD20M (rs=-0.45, p=0.124) and FEV1 (rs=-0.40, p=0.089) were moderate but failed to reach statistical significance. No correlations between absolute cell counts and PD20M and FEV1 were observed. Sputum induction was a safe procedure although only possible in a limited proportion of the subjects. In this group of patients, with stable asthma and receiving inhaled corticosteroids, sputum inflammatory cells were not correlated with bronchial hyperreactivity. These results further support the dissociation of bronchial inflammation and hyperreactivity in steroid treated stable allergic asthma.

P31
α^{E} b^{7} ntegrin (cd103-b7) expression in bronchoalveolar T lymphocytes in interstitial lung diseases

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Abstract
Introduction: CD103, a receptor for the epithelial cell ligand E-cadherin, has been reported to be preferentially expressed in terminally differentiated mucosal intra-epithelial lymphocytes, and suggested to be involved in the recruitment of lymphocytes to lung epithelial surface. BAL CD4 T cells expressing CD103 have been reported to be in various amounts in diverse ILD, suggesting a role in some of this diseases.

Aim: comparison of BAL CD103 expression in bronchoalveolar T cell subpopulations in Sarcoidosis and other interstitial lung diseases (ILD) patients.

Material and Methods: CD 103 expression was investigated in BAL lymphocytes of 42 patients (median age 39±16 years; 20 men and 22 women). CD2, CD3, CD4, CD8, CD19 and CD56 expression was also assessed by flow cytometry. Twenty one patients had Sarcoidosis with thoracic involvement (stage I-10, stage II- 7, stage III-2, stage IV-2). Pneumoconiosis, lung involvement by Connective Tissue Diseases, Hypersensitivity Pneumonitis and Idiopathic Pulmonary Fibrosis were the pathologies presented in the other 21 patients. Appropriate descriptive statistics were calculated; comparisons between groups were performed using non-parametric Mann-Whitney U or Kruskal-Wallis tests as appropriate.

Results: Sarcoidosis patients have the followed results: lymphocytes 43.2±16.4%, CD4 70.8±16, CD8 19.7±15.2, CD4/CD8 6.5±5.4, CD4+103+ 30.9±32.9 (median 11.6) and CD8+103+ 43.9±32.2. Otherwise the other ILD patients revealed lymphocytes 52±24.4, CD4 41.2±21.9, CD8 47.7±20.6, CD4/CD8-1.3±1.3, CD4+103+ 46.7±28.8 (median-33.8) and CD8+103+ 66.9±27.9. We found a significant lower number of the BAL CD103+ CD4+ subset in Sarcoidosis patients, comparatively with other ILD patients (p=0.026); in contrast no statistical difference was noted in the CD8+103+ subsets.

Conclusions: a selective decrease of CD103 expression characterizes BAL CD4+ lymphocytes in Sarcoidosis, comparatively to other ILD. As CD103 is a characteristic molecule of mucosal T lymphocytes, our data further support the hypothesis of a redistribution and alveolar compartmentalization of peripheral blood CD4+ lymphocytes in Sarcoidosis, rather than an expansion of intraepithelial terminal differentiated cells.